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The Breeding Ecology and Mating System of the Bellbird (*Anthornis melanura*) on Tiritiri Matangi Island.

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Abstract

A large population of Bellbirds were individually banded and monitored on Tiritiri Matangi Island in 2005 and 2006. The main aim of this research was to provide baseline breeding data from a large, stable population of Bellbirds reminiscent of pre-colonisation New Zealand. Nesting observations indicated that Bellbirds preferentially nest in Cabbage Trees on the island. Nest success was similar to recent values detected for other open nesting passerines found on the island, and has not changed since the study by Anderson & Craig (2003) undertaken in 1979. This is interesting considering that predation pressures would have been significantly alleviated since the eradication of Kioie in 1993. Breeding was found to be highly asynchronous within neighbouring territories in both 2005 and 2006. The majority of social bonds were recorded as monogamous, similar to past findings; however this research reported one case of polygynandry. In addition, regular extra pair male visits to other nests were recorded, as well as the occurrence of extra pair copulations. Parental care was undertaken by both sexes; however was largely unequal in that the female invested more in nest attendance than the male. The inequality in parental care, as well as the observed extra pair social behaviours, led to doubts over the current certainty of monogamy as the mating system in this species. The genetic analysis of paternity revealed that both males and females engage in mixed mating strategies, with 81% of offspring a result of extra pair paternity. This represents one of the highest levels of promiscuity recorded in passerines to date. The high level of sexual dimorphism coupled with the high level of promiscuity indicates the importance of genetic evidence for conclusions regarding mating systems; especially in the honeyeater species that show sexual dimorphism and hence intense sexual selection.



Male Bellbird (*Anthornis melanura melanura*).
Photos: Jan Doak, 2007.

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Wet male Bellbird.
Photo: Jan Doak, 2007.

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